



REPORT TO THE CONGRESS

Need To Evaluate And Improve Postal Source Data System Before Further Expansion B-114874

Post Office Department

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BY THE COMPTROLLER GENERAL
OF THE UNITED STATES

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

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To the President of the Senate and the
Speaker of the House of Representatives

This is our report on the need of the Post Office
Department to evaluate and improve the Postal Source
Data System before further expansion.

Our review was made pursuant to the Budget and
Accounting Act, 1921 (31 U.S.C. 53), and the act of Sep-
tember 2, 1960 (39 U.S.C. 2206).

Copies of this report are being sent to the Direc-
tor, Office of Management and Budget; the Postmaster
General; and the U.S. Postal Service Board of Governors.

A handwritten signature in cursive script, reading "James B. Stacks", is positioned above the title of the Comptroller General.

Comptroller General
of the United States

D I G E S T

WHY THE REVIEW WAS MADE

In 1966 the Post Office Department embarked on a multimillion-dollar program to install, nationwide, an automated data collection and processing system to provide postal management with more timely and accurate information on employee time and attendance, labor-hour distribution, and mail volumes processed than was possible under manual data systems.

Substantial economies in operating costs were expected to result from this automation effort, called the Postal Source Data System.

The system was to be installed initially in the 75 largest post offices. The Department later decided to expand it to include at least 35 other large post offices.

After the Department began installing the system, the General Accounting Office (GAO) noted that implementation schedules were not being met, that installation costs were rapidly increasing, and that local postal management officials believed the information produced by the system would have little, if any, value. GAO noted also that the appropriations committees of the Congress were expressing interest in the schedule slippages and the cost and usefulness of the system.

Therefore GAO conducted a review to ascertain (1) the effectiveness of the planning for the system, (2) the reasons for the rising costs of acquiring and operating the system, and (3) whether the system was supplying postal officials with useful data for improving postal operations.

This report deals with those aspects of the system for which the Department has responsibility and is not intended to be critical of the prime contractor or its performance under its contracts with the Department. Therefore the prime contractor was not requested to review or comment on the matters discussed in this report.

FINDINGS AND CONCLUSIONS

In 1966 the Department estimated that the total acquisition cost of the system when fully installed would be \$30.2 million and that it would

be fully operational in the 75 post offices by November 1968. The Department predicted savings, averaging \$7.2 million annually, during each of the first 5 years of the system's operation.

Despite the lack of sufficient data to indicate the feasibility of the proposed system and the types and quantities of equipment needed and contrary to the recommendations of its own study groups, the Department awarded a contract in the amount of \$22.7 million for the purchase and nationwide installation of equipment for the system.

The premature award of the contract resulted in the acquisition of unneeded electronic data collection equipment costing about \$1.2 million and of other equipment that was not used for substantial periods of time. By December 31, 1970, 31 amendments had increased the amount of the contract to \$49.7 million, more than double the original amount. (See pp. 10 to 29.)

Acquisition costs incurred by the Department both in-house and under contracts totaled \$60.5 million by February 1971. Of this amount, at least \$44.5 million was attributed to the initially planned 75 installations--an increase of \$14.3 million, or 47 percent, over the Department's estimated costs of \$30.2 million for these post offices. (See p. 10.)

As of November 30, 1970, a fully operational system had not been implemented at nine of the initial 75 post offices, including two of the largest in the country--New York, N.Y. and Washington, D.C.--although more than 2 years had passed beyond the original November 1968 target date. (See pp. 7 and 10.)

Annual employee costs, as of October 1970, for authorized system positions exceeded the Department's original estimate of \$5.5 million by at least \$14.1 million, or 256 percent. In addition, other postal employees had been diverted from their regular post office duties to operate the system. The number of such employees and the related costs were not readily available. (See pp. 30 and 31.)

Automated payroll operations were more costly than under the former manual system (see p. 31), and the reports generated by the system were of little value to postal management. (See pp. 33 to 38.)

The Department initiated a multimillion-dollar expansion of the system to an additional 35 post offices (see p. 39) although (1) the system was not fully operational at the initially planned 75 post offices (see p. 10), (2) the information being generated was of limited use to postal management (see pp. 33 to 38), and (3) numerous problems were being encountered with that portion of the system that had been installed (see pp. 34 to 38).

Most of the deficiencies and the increased costs resulted from inadequate study and insufficient testing of this complex data collection and processing system prior to nationwide installation. (See p. 41.)

RECOMMENDATIONS OR SUGGESTIONS

The Postmaster General should

- suspend the expansion program pending a comprehensive evaluation and cost-benefit study of the system and
- curtail the procurement of equipment and software for the system and keep operational costs to a minimum pending the outcome of the evaluation and cost-benefit study. (See p. 44.)

AGENCY ACTION AND UNRESOLVED ISSUES

The Postmaster General said that the results of GAO's review confirmed many of the findings previously reported by the Department's internal auditors and that the difficulties, delays, and added costs involved in establishing the system were a matter of concern to the Department. Although recognizing that some mistakes were made, the Postmaster General disagreed that all of them could have been avoided.

The Postmaster General stated that over the past 12 months considerable improvements had been introduced into the system and that these efforts, in his opinion, had overcome, to a significant degree, the problems cited by GAO.

He stated also that the Department concurred generally with GAO's suggestion that further expansion of the system be suspended pending an evaluation and cost-benefit study; however, he believed that a limited further expansion to the 110 post offices must be completed to avoid further adverse effects on the overall objective of the system. He advised GAO that commitments had been made and obligations had been incurred for most of the equipment involved in the limited further expansion to the 110 post offices. (See p. 42.)

GAO recognizes that certain improvements have been made in the system but believes that it is neither desirable nor a judicious investment of funds to expand the system to any additional post offices, including the planned limited expansion to 110 offices, when its effectiveness and economy have not been demonstrated at the facilities where it has been installed.

GAO noted that, notwithstanding the Department's existing commitments and obligations for equipment to expand the system to the 110 post offices,

future expenditures of millions of dollars still could be avoided if the current expansion were suspended. (See pp. 43 and 44.)

MATTERS FOR CONSIDERATION BY THE CONGRESS

This report demonstrates the need for the Post Office Department to critically evaluate and improve the economy and effectiveness of the Postal Source Data System before investing more funds to expand it to additional post offices.

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ABBREVIATIONS

ADP	automatic data processing
ADPC	Automatic Data Processing Center
GAO	General Accounting Office
PSDS	Postal Source Data System

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CHAPTER 1

INTRODUCTION

The Postal Source Data System (PSDS) was designed to collect data at its source in selected post offices concerning (1) employee time and attendance, (2) labor-hour distribution, and (3) mail volume, and to forward this data to centralized high-speed computers for processing. The processed data was to be electronically transmitted to the originating post offices and other organizations within the postal service in the form of reports to be used as aids to management. PSDS has been described by the Post Office Department as being the largest system of its kind ever developed and an important first step in the Department's development of a Postal Management Information System.

PSDS was to be initially installed in the 75 largest post offices in the continental United States, involving about 60 percent of the total mail volume and 60 percent of the total number of post office employees, and was to be fully operational in these 75 offices by November 1968. PSDS was subsequently expanded to include an additional 35 large post offices. Although PSDS has become fully operational in some of the 35 expansion offices, it has yet to be implemented in several of the initial 75 offices. We have identified PSDS acquisition costs of about \$60 million as of February 1971. The 110 post offices currently designated for PSDS installation are listed in appendix I.

Source data entering PSDS through electronic input devices at individual post offices is transmitted over long-distance telephone lines to computers at one of five collection centers (teleconcentrator sites), in Paramus, New Jersey; Washington, D.C.; Chicago, Illinois; San Francisco, California; and Oklahoma City, Oklahoma. The computers at these sites continuously collect data from the post offices they serve and forward the data automatically to large-scale computers at one of two automatic data processing centers (ADPCs) in either Wilkes-Barre, Pennsylvania (this center was formerly located in Paramus) or St. Louis, Missouri. The ADPCs, after processing the data, transmit it to high-speed printers in the post offices to provide local postal management with print-out reports on labor-hours worked and mail volumes.

The flow of data within the system is illustrated on page 8. A map showing the PSDS communications network design, as of August 1970, is on page 9.

The more than 12,000 input, processing, and output devices that constitute PSDS are connected by over 115,000 miles of transmission lines leased from telephone companies. Alternate lines and dual equipment have been designed into PSDS to provide protection against possible loss of data due to equipment or transmission line failure.

The basic components of PSDS are described in appendix II and pictures of selected PSDS equipment components are included in appendix III. The pictures in appendix III, pages 53 to 57 were obtained from the Post Office Department; the remaining pictures were taken by our representatives during our field review.

CHRONOLOGY OF ACQUISITION OF PSDS

Between 1962 and 1965 a prototype source data collection system was tested in the Minneapolis, Minnesota, and Milwaukee, Wisconsin, post offices. On the basis of these tests, a feasibility study was made and completed in 1965. The study report concluded that a nationwide source data collection system was feasible, that the cost of the system--estimated at \$33 million--could be completely amortized in the first 5 years of operation, and that the system would provide the Department with savings of \$36 million in the same period. On the basis of this study, a line item of \$33 million was included in the Department's budget for fiscal year 1967 for acquisition of such a system.

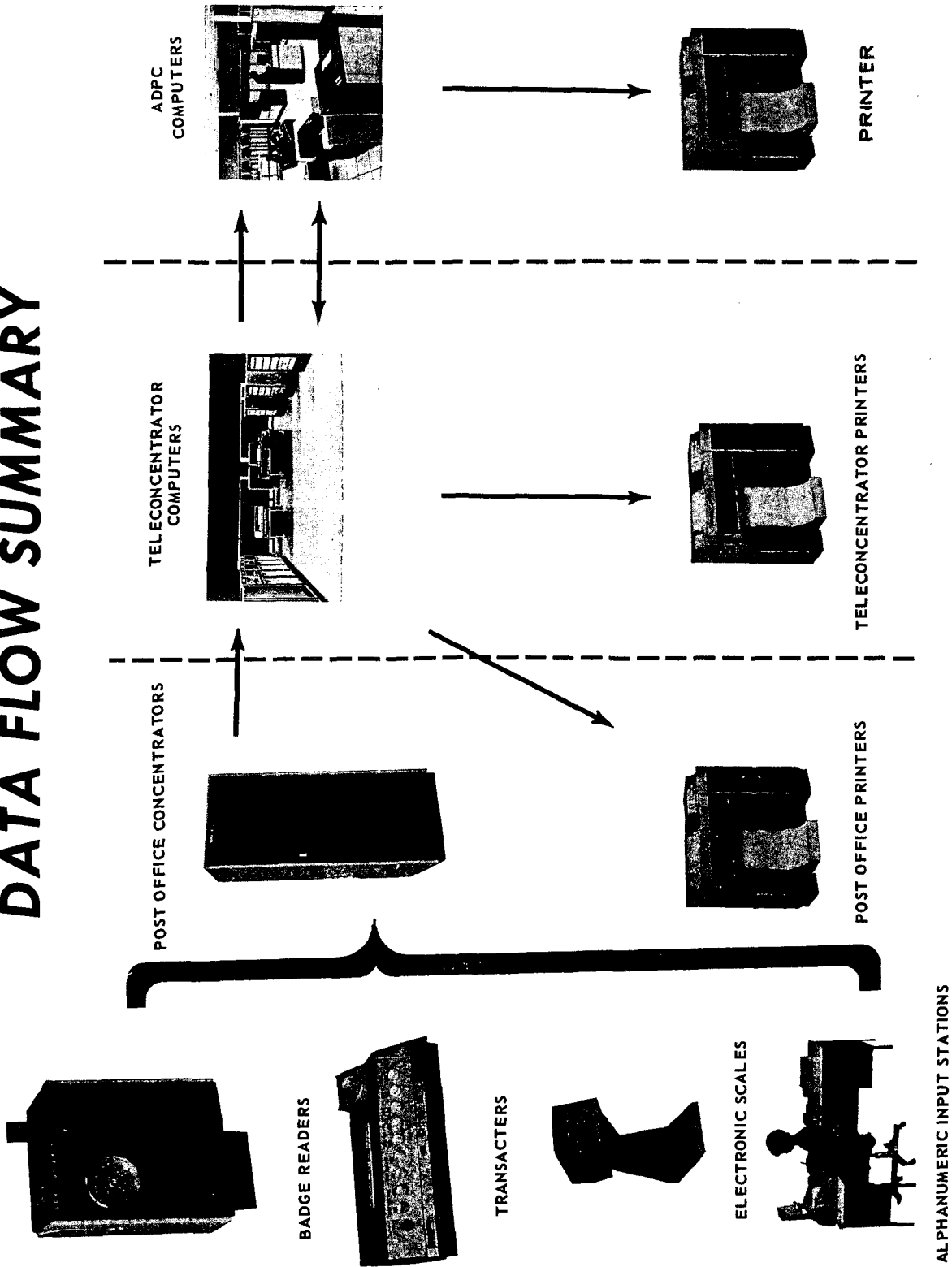
In January 1966 a request for proposals for a Postal Source Data System was released to 59 vendors. Five of the 59 vendors responded to the request and four submitted responsive proposals. After a period of evaluation, a successful vendor was selected, and on June 30, 1966, the Department entered into a negotiated contract with the successful vendor (hereinafter referred to as the prime contractor), in the amount of about \$23 million (subsequently increased to about \$50 million) for the acquisition and installation of PSDS as a fully operational system in the 75 (now 110) largest post offices.

This report deals with those aspects of PSDS for which the Department, rather than the prime contractor, had full or primary responsibility and is not intended to be in any way critical of the prime contractor.

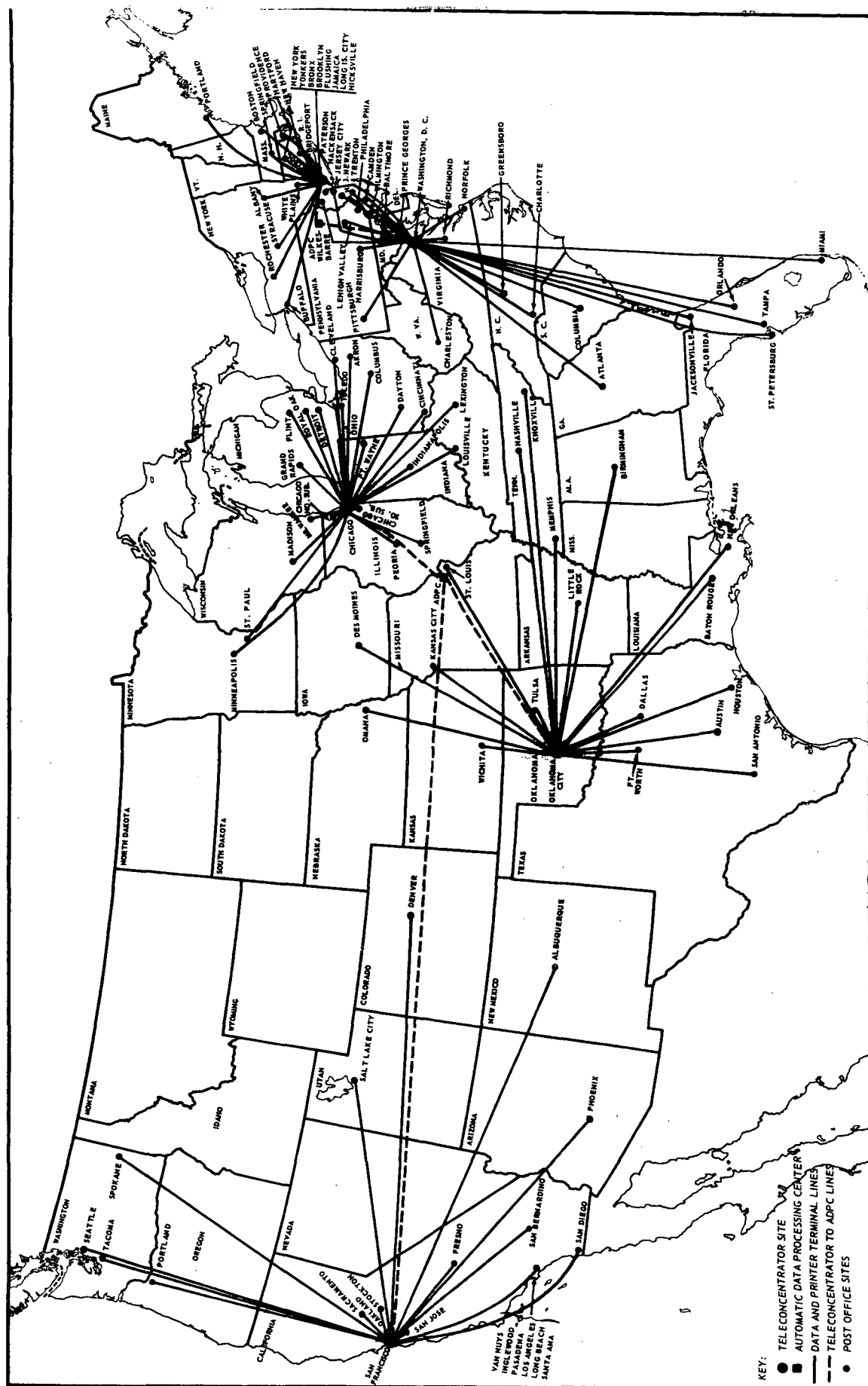
STATUS OF PSDS IMPLEMENTATION

As of November 30, 1970, all three major system applications--employee time and attendance, labor-hour distribution, and mail volume--were operational at 86 post offices, including 66 of the initial 75 largest offices, and the employee time and attendance application only was operational at 12 additional post offices. The Department expects the three major system applications to be fully operational at the 110 post offices in PSDS by August 1971.

POSTAL SOURCE DATA SYSTEM DATA FLOW SUMMARY



POSTAL SOURCE DATA SYSTEM COMMUNICATIONS NETWORK DESIGN (AS OF AUGUST 1970 -- 110 POST OFFICES)



CHAPTER 2

INSTALLATION OF PSDS BEHIND SCHEDULE AND COSTS ARE SPIRALING UPWARD

In February 1966 when justifying the need for funds for PSDS before the Treasury, Post Office and Executive Office Subcommittee, House Committee on Appropriations, Department officials stated that (1) the total cost of PSDS would be about \$33 million (equipment, software, and installation, \$30.2 million; first year's supplies, communication line rental, and maintenance, \$2.8 million) and (2) the employee time and attendance, labor-hour distribution, and mail volume recording functions of PSDS would be fully installed in the 75 largest post offices by November 1968.

By February 1971, more than 2 years after the target date for a fully operational system in the initial 75 post offices, PSDS acquisition costs related to the initial 75 post offices had risen to at least \$44.5 million (an increase of \$14.3 million or 47 percent); but PSDS was not operational in several of these post offices including those in New York City and Washington.

Also by February 1971, PSDS acquisition costs--both in-house and under contracts--at 110 post offices (the initial 75 plus 35 expansion offices) totaled about \$60.5 million. The target date for full installation of the three planned applications of PSDS at the last of the initial 75 largest offices and the last of the 35 expansion offices is August 1971, more than 2-1/2 years beyond the initial target date of November 1968 for having PSDS fully operational.

We believe that the Department's decision to award contracts for the purchase and installation of equipment for PSDS in 75 post offices was premature and resulted in excessive costs. In our opinion, most of the deficiencies and spiraling costs associated with the installation of the system resulted from inadequate study and testing before nationwide installation. At the time the initial contract for the acquisition and installation of the PSDS was awarded:

1. Only limited testing had been made of a prototype source data collection system and that system was significantly different from the one contracted.
2. A study made by the Department prior to the award of the contract had not demonstrated adequately the feasibility of the proposed nationwide source data collection system.
3. Sufficiently detailed system specifications had not been prepared.
4. Site surveys to enable the Department to make realistic estimates of such items as equipment and space needs had not been made at most of the 75 post offices where the system was to be installed.

Delays and added costs resulted also from various changes in specifications and procedures for a Work Load Recording System encompassing the labor-hour distribution and mail volume system applications.

LIMITED TESTING AT MINNEAPOLIS AND MILWAUKEE POST OFFICES

In September 1962 the Department began testing a prototype automated source data collection system at the Minneapolis Post Office. In June 1964 system testing was expanded to the Milwaukee Post Office. This system was designed to capture (on punched paper tape in a form suitable for computer processing) payroll data, labor-hours used, mail volume recordings, and motor vehicle statistics at post office work locations. The information on the tape was to be transmitted over a communication line to a central computer in the Minneapolis Postal Data Center for processing. This prototype system was significantly different from the PSDS the Department contracted for in 1966 (see p. 15 for a description of the system acquired).

Department records indicated that in a January 1965 meeting a Department study team, engaged in reviewing the source data collection system, expressed concern that although only timekeeping functions were being performed on the system, computer capacity already had been reached. A

Bureau of Finance (currently, Finance and Administration Department) representative at the meeting explained that such a condition was due to a temporary peak work load which would level off, but stated that he recognized that larger equipment would be mandatory in the next 12 to 18 months. This official explained also that a decision to expand the system would be made only when the current system had proven itself; was fully warranted; and had demonstrated that it would "pay off."

Also in January 1965, a postal inspection report stated that the source data collection system in Milwaukee and Minneapolis could not be justified if used for timekeeping purposes only and that the results obtained for payroll purposes definitely did not meet acceptable standards. The inspectors pointed out that, although experiments had been conducted in recording payroll, mail volume, and motor vehicle information, the recording of information in the two latter areas had been suspended and the system was being used for timekeeping purposes only.

The inspectors stated also that no attempt had been made by the Department to evaluate the cost of the system, and they recommended that (1) an analysis be made comparing manual system costs with automated system costs and (2) until the system tests satisfactorily demonstrated that at least one part of the mission of the system could be accomplished, experimentation and development should be confined to Minneapolis and Milwaukee.

A June 1965 Department study described this automated system as one which provided a more comprehensive data-gathering method than the then-existing manual system but which fell short of requirements for a management information system.

We did not find any evidence to show that the comparative cost analysis recommended by the postal inspectors was made or that the source data collection system was satisfactorily tested at Minneapolis and Milwaukee.

INADEQUATE FEASIBILITY STUDY

Although a Department study team and postal inspectors had recommended that the source data collection system be confined to the two post offices where it was being tested, the Finance and Administration Department approved a June 1965 study report proposing that a source data collection system be installed in the Department's 75 largest post offices. This proposal was based on data developed during the operation of the source data collection system being tested at Minneapolis and Milwaukee. The study report concluded that:

1. The system would provide a less expensive way of gathering management information.
2. The information and data gathered would be more accurate.
3. Data would be made available to all levels of management on request.
4. Supervisors would be relieved of approximately 1 hour of clerical work a day.
5. The system would reduce manual work load in the areas of keypunch/key-verify, timekeeping, work measurement, payroll, and cost ascertainment.
6. Data would be gathered, processed, and disseminated at greater speeds than with the existing manual system.

The Comptroller General and the Director of the Bureau of the Budget (now Office of Management and Budget) issued guidelines in January 1959 and March 1960, respectively, to be followed by all executive branch departments and establishments in making preacquisition (feasibility) studies of automatic data processing (ADP) systems. These guidelines, which are still in effect, describe the essential characteristics of an adequate feasibility study, including, but not limited to:

- A realistic examination of the cost of an ADP system when related to the results that can be achieved.

--A discussion of alternative systems considered.

--Specific recommendations directed toward both the specific problems involved in getting started and the proposed regular operation under the new system.

We believe that the June 1965 study report fell short of meeting these guidelines and of demonstrating the feasibility of the proposed source data collection system and did not justify the decision to acquire and install the costly equipment in 75 post offices. Some of the shortcomings of the study report were:

1. The feasibility and costs of the proposed system were based on data for a significantly different system in Minneapolis and Milwaukee, a system which had neither been tested fully nor proved successful. We were informed that supporting documentation for the cost data was not available. (See pp. 21 to 23 for a discussion of cost overruns.)
2. Specific problems--such as adequacy of electric power, air conditioning, space, and transmission capability of local telephone facilities--which might be involved in making the system operational, were not identified. (See pp. 23 and 24 for a discussion of problems that developed because this was not done.)
3. Only one data collection system was discussed and no alternative proposals were presented or considered.

The study report did not contain, although required by the guidelines, any recommendations for developing the proposed system. Furthermore, the conclusions reached in the report (see p. 13) were not supported by the results of the limited tests performed prior to the date of the report.

On August 6, 1965, at a Source Data Automation Conference, Department officials made the following comments concerning the Minneapolis-Milwaukee system.

1. The present system would be changed. Punched paper tapes and compilers would be eliminated and data

would be transmitted directly to computers for recording on magnetic tapes. Transactor input devices used would be replaced by more sophisticated hardware at less cost.

2. The electronic scales used for measuring mail volume were experimental and would continue to be experimental until Department engineers and ADP managers were satisfied that the Department had the most accurate type available.

Although changes would be made in the prototype system, officials at the conference proposed a plan for implementing a source data collection system. Seventy-five post offices would be tied to approximately eight new source data collection computer complexes. Five to 10 post offices would be tied to each complex with approximately 50 input stations in each post office. Justification for the plan was based on the Minneapolis-Milwaukee system limited test results which had been questioned by Department representatives.

Representatives at the conference from the Department's ADP Management Division contended that the first permanent source data collection complex in the nationwide system should be leased with an option to purchase and that, after equipment needs had been fully explored and determined, the remaining seven complexes could be purchased. For reasons which we were not able to determine, however, this lease-purchase option approach was not adopted and the Department awarded a \$22.7 million negotiated contract in June 1966 for the purchase and installation of the entire system.

The PSDS contracted for in June 1966 represented a significant change from the system discussed at the Source Data Automation Conference, described in the Department's feasibility study, and presented to the Congress in February 1966. Rather than processing data in batches at specific intervals, such as hours or blocks of hours, the system being installed processes each data transaction as soon as it enters the system through remote input stations. Instead of eight computer complexes, each serving five to 10 post offices, the system being installed has

--two ADPCs, each with dual large-scale computer systems,

--four (now five) teleconcentrator sites, each with dual medium-sized computer systems, and

--75 (now 110) designated post office data collection and concentration center systems.

The installed electronic equipment in each post office is connected to one of the five teleconcentrator sites by leased dual communication lines. Each teleconcentrator site is connected to an ADPC, also by leased dual communication lines.

This system was not operationally tested prior to the June 1966 contract award which committed the Department to procure equipment that initially cost \$22.7 million. Such a test was feasible through a lease-purchase option offered by the prime contractor and, in our view, the nature and proposed cost of the system fully justified such an operational test before the Department awarded a contract for purchase and installation of the entire system.

SYSTEM SPECIFICATIONS NOT PREPARED PRIOR TO
SELECTION AND PURCHASE OF PSDS EQUIPMENT

The preparation of system specifications is a necessary prerequisite in acquiring ADP equipment. Circular A-54, issued by the Bureau of the Budget in October 1961, specifically states that:

"The selection of ADP equipment will not be made until system specifications are available to serve as a basis for selection. For purposes of this Circular, the term 'system specifications' means (1) the delineation of the objectives which the system is intended to accomplish; (2) the data processing requirements underlying that accomplishment, i.e., a description of the data output and its intended uses, the data input, data files, volumes of data, processing frequencies and timing; and (3) such ADP equipment capabilities as may need to be identified. System specifications will be designed to insure free competition among equipment manufacturers."
(Underscoring supplied.)

Department records indicated that detailed system specifications for PSDS were not completed until 6 months after the contract for the procurement and installation of PSDS was awarded in June 1966 and that at least six major changes were made to these specifications between January and June 1967. Such changes were necessary primarily because of revised user requirements of the customer bureaus within the Department.

In a PSDS status report, dated February 12, 1968, Department officials stated that, because the proposed system was unique, the request for proposal released to prospective bidders in January 1966 allowed the manufacturers considerable flexibility in developing the configuration of equipment for the system. In this regard, the report stated:

"Because of the flexibility provided the manufacturers in their proposals, the system specifications were not developed in fine detail.

The proposals allowed vendors to propose from one to eight computer systems, various methods of communications, and various input devices. It was necessary to know the exact configuration before the details of the specifications could be completed. It was also planned that this task would be completed in conjunction with the techniques provided by the successful vendor."

* * * * *

"While the RFP [Request for Proposal] did describe the Postal Source Data System in considerable detail, it did not constitute Systems Specifications. Therefore, it was impossible to utilize the *** [prime contractor's] programming support staff as originally contemplated. Instead, under the direction and guidance of the three-man POD [Post Office Department] PSDS staff, the *** [prime contractor's] analysts and programmers were utilized to develop a systems specification." (Underscoring supplied.)

During the period from May 23 to November 30, 1966, according to the report, four system specifications were developed and "junked," primarily because they did not satisfy the requirements of the customer bureaus.

In November 1966 about 5 months after the procurement contract for PSDS had been awarded, the Department decided to develop entirely new system specifications using more comprehensive information available on such system requirements as the ratios of types of messages; the number, types, and frequency of reports; and the number of lines of output printing. In a review of the revised system specifications, officials of the prime contractor noted that the system would require additional computer memory capacity and, if approved, would result in the Department's ordering additional memory units.

It became evident, as indicated by the records of the Department and the prime contractor, that the significant changes incorporated in the new system specifications were necessary if PSDS were to serve its purpose of providing all

levels of the Department's management with timely, accurate, and useful information. The revisions covered such items as:

1. The extension of work measurement reporting to include data from the branches as well as from the main post offices.
2. A 100-percent increase in the number of daily reports.
3. A 312-percent increase in daily print line volume.
4. The increased complexity of processing the data.

These revisions constituted significant changes in the scope of the PSDS project and in the system requirements set out in the Department's request for proposal. Department records indicated that these changes in scope resulted in the procurement of additional equipment totaling at least \$855,200.

Prime contractor officials stated that virtually all computer programming work was necessarily suspended pending completion of the development of the revised system specification in January 1967, at which time a careful review was to be made to (1) determine how much of the computer programming work accomplished to date could be salvaged and (2) develop a realistic schedule for completion of the programming.

In a May 1967 status report, the prime contractor concluded that the development of an ultimate system of the magnitude of PSDS, including all the features desired by the Department, would require a very long and concentrated effort by a full-time team representing all interested organizational units. The report stated that such an effort had not been made and was not then being made because, if the system was to be operational by the target date of November 1968, time would not permit such effort. The alternative, according to the report, was to implement the most comprehensive system possible within the allowable period and to improve the system at a later date. Subsequently, the prime contractor determined that only the time and attendance function could be initially implemented.

In our view, if sufficiently detailed system specifications for PSDS had been prepared by the Department prior to the award of the procurement contract, the Department:

1. Would have been able to make more realistic determinations of equipment requirements and the cost thereof.
2. Could have established a more realistic target date for a fully operational system at the initial 75 post offices.
3. Might have selected a different system proposed by other bidders.

In addition, if the requirements of the customer bureaus had been clearly identified before development of the initial system specifications which were later "junked," the cost of this unproductive effort might have been avoided.

SITE SURVEYS NOT MADE PRIOR TO
CONTRACT AWARD

Prior to the award of the contract for the procurement of PSDS, site surveys were not made at all of the 75 initially selected post offices to determine the equipment requirements, the space needs, the necessary site modifications and improvements, and the implementation problems to be overcome. The Department sent questionnaires to the 75 offices but visited only eight offices before awarding the contract. Equipment requirements included in the procurement contract were estimated primarily on the basis of employee complements for the 75 post offices.

As late as February 1968--more than 19 months after awarding the procurement contract for PSDS--only 49 of the 75 offices had been surveyed and their actual equipment needs determined. As a result of these surveys, the original equipment quantities and the amount of the contract were increased substantially through numerous contract amendments.

For example: at the Atlanta, Georgia, Post Office, we were informed that the Department neither conducted site surveys nor sought the advice of officials at either the Atlanta Postal Region or the Atlanta Post Office concerning the types, quantities, or proposed locations of PSDS equipment until more than 4 months after awarding the PSDS procurement contract.

Equipment valued at about \$216,800 was included in the original procurement contract for the Atlanta Post Office. As a result of site surveys completed on June 30, 1967--a full year after the award of the contract--the Department determined that equipment, costing about \$458,100, was needed to implement PSDS at the Atlanta Post Office and its associated branches and stations. This amount represented an increase of about \$241,300, or 111 percent, more than the amount that had been estimated and provided for in the original contract.

A site survey to determine the quantity and location of PSDS equipment at the Brooklyn, New York, Post Office was not completed until May 5, 1967. As a result of the

survey, the cost of PSDS equipment required by the Brooklyn Post Office was increased from the original estimate of \$445,100 to \$543,000, an increase of 22 percent.

The following table shows the adjustments in the quantities of equipment that have been necessary at 10 other PSDS post offices and the effect the adjustments have had on the cost of PSDS. Similar equipment adjustments were made at other PSDS post offices not included in this table.

Post office location	<u>Original estimates</u>		<u>Deliveries to April 1, 1969</u>		Percent of in- crease in cost
	<u>Quantity in units</u>	<u>Cost</u>	<u>Quantity in units</u>	<u>Cost</u>	
Albany, N.Y.	41	\$ 102,500	77	\$ 203,100	98.1
Birmingham, Ala.	61	148,700	94	255,200	71.7
Charlotte, N.C.	47	120,500	98	217,300	80.3
Greensboro, N.C.	39	100,600	79	180,200	79.2
Miami, Fla.	123	286,900	210	468,700	63.4
New Haven, Conn.	50	121,700	82	197,000	61.9
Rochester, N.Y.	77	193,700	133	301,500	55.5
Springfield, Mass.	53	124,100	85	208,600	68.1
Tampa, Fla.	49	127,200	86	200,000	57.0
Richmond, Va.	<u>60</u>	<u>150,300</u>	<u>95</u>	<u>252,700</u>	68.1
Total	<u>600</u>	<u>\$1,476,200</u>	<u>1,039</u>	<u>\$2,484,300</u>	68.3

From the award of the contract for the acquisition and installation of PSDS to December 31, 1970, 31 amendments had increased the amount of the contract from \$22.7 million to \$49.7 million, as shown in the following table.

	<u>Date</u>	<u>Description</u>	<u>Cost</u>
Original order	6-30-66	Equipment and installation	\$22,699,991
Amendment number:			
1	8-24-66	Price adjustment (decrease)	\$ -80
2	11- 4-66	Equipment modifications	42,847
3	5-24-67	Additional equipment	4,589,475
7	12-28-67	do.	4,223,932
8	1- 4-68	do.	1,835,760
10	1-10-68	Equipment decrease	-104
13	6-28-68	Additional equipment	2,224,365
18	9-13-68	Equipment modifications	11,589
20	10-16-68	Additional and replacement equipment	129,000
23	1-15-69	Equipment exchange	83,000
24	1-24-69	Additional equipment	227,700
25	1-23-69	Equipment modifications	<u>3,000</u>
			<u>13,370,484</u>
		Equipment and installation costs related directly to the initial 75 post offices	36,070,475
27	5-13-69	Additional equipment for the initial 75 post offices and 35 expansion post offices	11,155,717
29	8-29-69	Equipment modifications	9,585
31	12- 3-70	" decrease	<u>-4,320</u>
			<u>11,160,982</u>
		Total contract equipment and installation costs	47,231,457
		Costs of other contract amendments	<u>2,502,422</u>
		Total contract amount as of December 31, 1970	<u>\$49,733,879</u>

Of the additional PSDS equipment acquired at a cost of \$24.5 million under the amendments to the contract, \$7.9 million (32 percent) represented the cost of equipment purchased at lower unit prices and \$12.7 million (52 percent) represented the cost of equipment purchased at the same or higher unit prices than prices for similar equipment under the original contract. The remaining \$3.9 million (16 percent) represented the cost of equipment which was different from that provided under the original contract.

Since the amount of the contract has more than doubled, we believe that, if more precise equipment requirements had been known prior to award of the contract, more competition might have been generated and lower prices for the larger quantities might have been offered by the bidders.

Further, if the Department had made adequate site surveys prior to the decision to acquire PSDS, it would have been in a position to recognize and correct any expected

problems in installing the equipment at post offices. In an April 1968 survey, the prime contractor reported that, in attempting to implement PSDS at the first 47 post offices, it had encountered several major problems, including lack of adequate electrical power and air conditioning to properly operate PSDS equipment in the post office data collection sites.

Of the 47 post offices, only 15 had adequate electrical power, only 19 had adequate air conditioning, and only 11 had both adequate electrical power and air conditioning. The prime contractor stated that it could not successfully implement PSDS at a post office site under these conditions and recommended that the Department inspect each site prior to authorizing implementation of the system at a post office.

The Department subsequently developed an equipment installation and testing program which required that site surveys be made before ordering equipment or preparing sites for equipment installation.

CHANGE FROM WORK MEASUREMENT SYSTEM TO WORK LOAD RECORDING SYSTEM

Prior to September 1968, work was performed on PSDS computer programs for a Work Measurement System application designed to provide mail volume and labor distribution data for each postal operation and for each 8-hour work tour within a post office and to measure individual employee productivity. The Work Measurement System was not implemented as part of PSDS, although we were informed that system specifications had been prepared and computer programs had been developed and tested prior to the fall of 1968. Rather, the computer programming for the Work Measurement System application was scrapped by the Department in the fall of 1968 when the Bureau of Operations (now Operations Department) replaced this system with a Work Load Recording System. Information was not readily available for us to determine the cost of the scrapped computer programs.

Under the Work Load Recording System, mail volume and labor-hour distribution data was to be provided on a 24-hour basis for selected operations only, rather than for each 8-hour work tour for all operations, and productivity was to be measured for groups of employees rather than for individual employees.

The first tests of the automated Work Load Recording System were made during the last week of February 1970, using data input from the PSDS post office in Richmond, Virginia. These tests proved unsuccessful, primarily because of several incompatibilities between the computer program and the ADPC equipment. The program was to be corrected and rescheduled for testing in Richmond in early March 1970, and further testing or implementation of the Work Load Recording System in other PSDS offices was to be dependent upon favorable results of the Richmond tests.

In July and August 1970, more than 1-1/2 years beyond its original target date of November 1968, the Department began implementing the automated Work Load Recording System in PSDS post offices where the employee time and attendance application was operational. As of November 1970, a total of 86 post offices were using the automated system.

The change from the Work Measurement System to the Work Load Recording System resulted not only in scrapping computer programs but also in overprocurement of mail weighing equipment and relocation of equipment installed in the post offices. These matters are discussed in the following sections.

Overprocurement of mail weighing equipment

The Department procured electronic mail-weighing equipment at a total cost of about \$10.7 million, including \$3 million for bench scales, which was to be used as part of PSDS to record mail volumes processed. Bench scales and associated electronic equipment were installed in PSDS post offices and, in some instances, remained idle for 2 years or more because neither a work measuring nor a work load recording system had been implemented under PSDS. Some of these scales were used to weigh mail under a manual version of the Work Load Recording System, but the scales were not tied into the electronic network of PSDS.

In September 1969, about 1 year after the decision to replace the Work Measurement System, Departmental ADP Management officials completed an evaluation of the equipment requirements for the Work Load Recording System and determined that only 600 bench scales would be needed at the 110 post offices planned for implementation of PSDS. However, 977 bench scales and related accessory equipment, 377 scales in excess of the Department's needs, had been purchased.

As of September 1969, 792 bench scales had been delivered or installed in post offices and the remaining 185 scales had been manufactured and were stored in the vendor's warehouses, pending delivery instructions from the Department. As of November 1970, the vendor was storing scales for the Department under an agreement which extends to July 1971. To our knowledge no evaluation was made in the fall of 1968 to determine whether equipment needs under the Work Load Recording System were different from equipment needs under the Work Measurement System.

The Department's contracting officer informed us that, under the terms of the procurement contract, the Department was obligated to accept delivery of all 977 bench scales

and related accessory equipment because production of the scales had been completed in July 1969. We estimate that the overprocurement of 377 bench scales and related equipment has unnecessarily increased the Department's cost of PSDS by about \$1.2 million.

We believe that the Department should have reevaluated its PSDS equipment requirements at the time the decision was made in the fall of 1968 to replace the Work Measurement System with the Work Load Recording System. Department records indicated that, as of October 31, 1968, a total of 690 bench scales and related equipment had been shipped by the prime contractor to various PSDS post offices--more than enough to satisfy the bench scale needs for all 110 PSDS post offices.

Relocation of electronic scale equipment

The change to the Work Load Recording System required major relocation of electronic scale equipment that had been installed in the post offices to meet the needs of the new mail volume recording concept. For example, the Brooklyn Post Office conducted a survey in January 1969 for the purpose of determining equipment needs under the Work Load Recording System. The Brooklyn Post Office had begun manual operations under this system in November 1968. On the basis of this survey, Brooklyn officials determined that three of seven electronic floor scales that had been installed in the post office required relocation to other areas in the office because of the changed system.

Equipment relocation costs were incurred at other PSDS post offices as a result of the change to the Work Load Recording System. The Department negotiated a \$600,000 contract in February 1970 with the prime contractor for the following purpose.

"Implementation of the new work load reporting system and changes of post office operating concepts will necessitate extensive relocation of PSDS equipment that has already been installed in 85 post offices. *** This reconfiguration contract will cover the cost of material and labor required to effect these changes."

The contract amount was increased to \$700,000 in July 1970 to accelerate this relocation effort.

Recent changes in the design of the Work Load Recording System, incorporating much of the Work Measurement System concept, are expected to again change the electronic scale equipment requirements.

UNDERUTILIZATION OF COSTLY COMPUTER EQUIPMENT

Because the Department did not implement PSDS as scheduled, costly computer equipment either remained idle or was not effectively used for long periods. For example, the first large-scale computer, acquired at a cost of about \$1.1 million, was delivered to the Paramus ADPC in January 1967. Another large-scale computer, acquired also at a cost of about \$1.1 million, was delivered to Paramus late that year. The two computer systems (A and B) were ready for use by January 1968; however, operations were not begun until September 1968--20 months after delivery of the first computer. Between April 1967 and September 1968, some information was being transmitted from four post offices to the ADPC on a test basis. The computer systems, however, remained idle much of the time. The following schedule shows the percent of idle time of the two computer systems from April 1967 to February 1970.

Computer System A

<u>Period</u>	<u>Percent of idle time</u>
Apr. 1967 to Oct. 1967	52
Nov. 1967 to Dec. 1967	80
Jan. 1968 to Aug. 1968	30
Sept. 1968 to Feb. 1970	Less than 1

Computer System B

<u>Period</u>	<u>Percent of idle time</u>
Nov. 1967 to Dec. 1967	60
Jan. 1968 to Aug. 1968	43
Sept. 1968 to Feb. 1970	9 to less than 2

Most of the recorded production time on the computers, from April 1967 to August 1968, was for system testing and program development. Although the table indicates that the computer systems were almost fully used after August 1968, the computer capacities were significantly underutilized because data from only a small number of post offices was being processed for only one of the three proposed system applications.

In our view, the significant amount of idle computer time and the premature investment in costly computer equipment were a direct result of the Department's failure to provide realistic implementation and delivery schedules for PSDS equipment.

CHAPTER 3

PREDICTED SAVINGS MAY NOT BE REALIZED

Although in 1966 the Department estimated that installing PSDS in 75 post offices would save about \$36 million during the first 5 years of operation, the unanticipated high costs incurred to date indicate that savings may not be realized.

The Department's predicted cost savings were based on the assumptions that (1) estimated annual cost to operate PSDS at the 75 post offices, including amortization of equipment costs over a 5-year period, would be \$14.6 million and (2) because annual employee costs of \$21.8 million for the manual time and attendance and work measurement systems in operation at the 75 offices would be eliminated, the employees involved in these manual systems would be reassigned to other duties.

These assumptions, which in our view lacked validity at the time they were made because of the inadequate feasibility study (see p. 13), were not borne out by actual PSDS operations. Employees who were assigned to operate the manual system have not been reassigned to other duties. On the contrary, operating costs to date have far exceeded the Department's estimates, and its anticipated cost reductions have not materialized.

The Department estimated, in its 1965 feasibility study, that 740 employees would be needed to operate PSDS in the 75 largest post offices and that the annual employee costs would total \$5.5 million.

Using the same basis used by the Department in its feasibility study, and recognizing the increases in employee complement and mail volume after 1965, we estimated that, as of October 1970, about 1,050 PSDS employees, at an annual cost of \$10.5 million, would be needed to handle PSDS transactions at the 75 post offices. Total authorized PSDS employees, however, had reached 1,857 by October 1970, or about 800 more than our updated estimate.

We estimated also that the annual salary costs for the 1,857 authorized employees totaled \$19.6 million, or \$9.1 million (87 percent) more than our updated estimate of \$10.5 million and \$14.1 million (256 percent) more than the Department's 1965 estimate. Data was not readily available for us to determine the PSDS employee salary costs for overtime pay, Sunday and holiday premium pay, and night differential pay.

The extent of PSDS-related employee increases after PSDS was installed varied among post offices. For example, our review at three post offices for a 4-week period showed that employee costs for processing time and attendance transactions alone increased substantially as follows:

Post office	<u>Man-hours</u>		Percent of <u>increase</u>	<u>Personnel costs</u>		Percent of <u>increase</u>
	<u>Before</u>	<u>After</u>		<u>Before</u>	<u>After</u>	
Atlanta, Ga.	2,945	5,310	80	\$15,200	\$ 25,200	66
Brooklyn, N.Y.	7,194	12,250	70	37,000	64,400	74
Newark, N.J.	<u>2,767</u>	<u>6,779</u>	145	<u>14,600</u>	<u>35,700</u>	144
Total	<u>12,906</u>	<u>24,339</u>	89	<u>\$66,800</u>	<u>\$125,300</u>	88

Some post offices have found it necessary to employ full-time time and attendance clerks to prepare the necessary payroll forms, whereas, before the installation of PSDS, such forms were filled out by production employees in their spare time.

In addition to the 1,857 authorized PSDS employees, a substantial number of other workers were involved in PSDS operations at the local post office level. For example, at the Brooklyn Post Office, in addition to the 31 positions authorized for the PSDS, eight other employees were assigned to the PSDS data collection site. At the Newark, New Jersey, Post Office, in addition to the 18 positions authorized, 21 other employees were assigned to PSDS activities. The additional assigned employees held other officially authorized positions in the two post offices but were diverted from these positions to perform PSDS duties.

The Department, in its original estimate of cost savings for the system, significantly underestimated other annual

operational costs for such items as supplies and services, maintenance, and amortization of equipment costs. The Department's 1965 estimate of the annual costs for these items totaled \$9.1 million for the 75 post offices to be included in the system. We estimated, however, that the annual costs for these items for the 75 offices totaled at least \$17 million, or \$7.9 million (87 percent) more than the Department's estimate.

Cost studies made by the Department's internal auditors at selected PSDS post offices indicated that, rather than eliminating or reducing clerical and operating costs at post offices, PSDS had substantially increased costs.

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In its fiscal year 1971 budget submission to the Congress, the Department stated, as follows:

"Cost Reductions, \$5,000,000:

"The gross employment increase for workload is offset by a reduction of 737 positions and man-years to be achieved by improved time and attendance processing resulting from the implementation of the Postal Source Data System. This substantial reduction in the 1970 level of employment represents a savings of \$5,000,000."

In view of our findings which indicate that more employees are needed to process time and attendance data under PSDS than under the former manual system, we have reservations as to whether this \$5 million reduction in employee costs can be achieved under PSDS as it is presently being operated.

CHAPTER 4

LIMITED USEFULNESS OF PSDS INFORMATION

The purposes of PSDS, as stated by the Department, are to provide more timely, accurate, and meaningful data; to eliminate paper work and relieve supervisors of time spent on paper work activities; and to provide improved information. At the time of our field review, these purposes had not been fulfilled.

EMPLOYEE TIME AND ATTENDANCE REPORTS

The volume of time and attendance reports produced by PSDS is substantial. A Department task force which studied the PSDS reporting system stated in its September 1969 report that, during one 2-week pay period, a single post office received an estimated 12 linear feet of PSDS reports--enough to fill six filing cabinet drawers. We question whether such volume of data can be examined timely and adequately for effective use by management.

Of the 24 reports produced by PSDS at the time of our field review late in 1969 and early in 1970, 19 were used as control and information documents needed to operate the PSDS time and attendance function and only five were designed to replace management reports previously prepared manually by postal mail operations supervisors. The post offices were still maintaining manual records, however, because the reports produced by PSDS were inaccurate or incomplete, or were received too late to be of use to postal supervisors.

The Department has stated that the Time and Attendance Sequence Error Report, which is produced at 2-hour intervals and identifies sequence errors (e.g., employee checked in at 8 a.m., and 1 p.m., but did not check out for lunch), should be the fundamental and most effective error signal to the post office. The timely receipt and correction of reported errors has a significant effect on the correctness and reliability of other reports generated by PSDS, because subsequent reports will contain erroneous data until corrected. Although this report was scheduled to be received by postal management at 2-hour intervals and was designed to cover

sequence errors occurring within a 2-hour period, the report, at times, was received by management as much as 14 hours late. It was therefore useless to local postal management as a means of promptly identifying and correcting errors listed in the report.

The Department task force, upon completing its study of the reporting system of PSDS in September 1969, recommended that the Department improve all the reports generated by PSDS. Their study recognized the need for timely receipt of reports by post offices. They observed that:

"*** In many cases the two-hour reports are delayed 6 to 8 hours and in extreme, but not unique cases, the post office may not receive a two-hour report for more than 14 hours. The result of the irregular and late receipt of this report is that the report is often ignored and corrections made to the Daily Sequence Error Reports because both the employee and employee supervisor have completed their tour and the information is often not available to make the corrections at the time the Two-Hour Report is received. These omissions cause other reports to lack integrity because transactions in the error files cannot be incorporated into subsequent reports."

We found similar difficulties involving the late receipt of PSDS reports. For example, at the Atlanta Post Office, none of the 2-hour reports were being received on time. At the Brooklyn Post Office, reports for a particular day's time and attendance transactions were received by postal stations generally 2 or 3 days after the day covered by the reports. Station officials at Brooklyn informed us that the reports were less effective and afforded them less control over employees than the unofficial manual records they were maintaining.

The Department's task force observed an additional problem related to the receipt of error listings too late to make the necessary corrections to payroll records. The task force stated in its report that:

"*** At the end of the pay period the entire error file (approximately 1 million messages) is purged from the system. ***"

* * * * *

"The purging of one million uncorrected errors each pay period reflects adversely upon the integrity of the reporting system. *** In order for field personnel to ever obtain confidence in the system, we believe that it is necessary that they attempt to correct all sequence errors."

The task force found not only that errors were not being corrected but also that the number of reports being generated to list errors and other information was excessive. The task force said that:

"A total of 24 reports are now produced by the PSDS system. Nineteen of these reports relate to Time and Attendance. We conclude that this probably is an excessive number of reports but field personnel contend that these reports are necessary because of continued malfunction of the system at the ADPC's. Conversely, we have reason to believe that one of the major causes of this malfunction is the excessive number of reports presently required over and above the planned capacity of the system."

At the post offices we visited, the number of reports generated under PSDS had not been reduced from the number required by the post offices before PSDS was installed. Local post office employees found it necessary to maintain manual records and, as a consequence, time spent by mail operations supervisors had not been reduced. On the contrary, their work had increased in certain cases.

For example, supervisors and timekeepers in the Brooklyn Post Office indicated that PSDS had increased their paper work and that the time spent on timekeeping duties had increased since implementation of PSDS. Station supervisors continued to maintain unofficial time and attendance records after PSDS was installed, because such records were

believed to be less time-consuming to work with in manually preparing local management reports on such subjects as the use of substitute mail carriers. Such unofficial records were often necessary as a data source because PSDS reports were not timely.

Some work stations used manual time cards and time clocks for substitute employees, in addition to PSDS electronic input devices. The time cards were used to aid supervisors in locating employees and in preparing required work station reports, since report data generated by PSDS was not received timely enough for the station supervisors' needs.

Three of the 22 reports received by the Atlanta Post Office--Report of Loaned Other Hours, Report of Time Certification-Higher Level, and Report of Transfer To-From Payroll Accounts--were not used for any purpose. A fourth report, the daily Carrier Report, was considered to be a management report but, as prepared by PSDS, was inadequate for management purposes. The report listed daily, by route number, all city delivery service. It showed the total office time and street time for each route and the name of only the first carrier going on the street.

The report did not provide information on individual carriers by name and hours and, consequently, could not be used to either supplement or eliminate the time-consuming preparation of Department Form 3997, Daily Record of Carrier Absences, Replacements, and Overtime. As a result, this PSDS report was not being used by local management officials at the Atlanta Post Office.

The most significant problems encountered by PSDS post offices with regard to the reports produced by the system were (1) the large volume of reports, many of which were of little or no value, (2) the inability of the post offices to forecast the time of receipt for any report or group of reports, and (3) the lack of integrity of reports, which required post offices to maintain supplementary manual records.

In commenting on the problems with PSDS reporting, the Department task force concluded that:

"*** it is deemed appropriate to point out that our present problems are not due exclusively to the number or content of reports. The continuous problems associated with the system, including loss of rings and the dropping of Employee Master Records has had a demoralizing impact upon post offices using the system. Unless these deficiencies are corrected, whether they be caused by post office personnel, hardware, software, or operator problems, no amount of modification in the reports will satisfactorily alleviate the present difficulties."

The Department's internal auditors have criticized PSDS because the payroll data produced has not met acceptable standards. The 1969 Annual Report of the Postmaster General stated that the internal auditors deemed it impracticable to verify an estimated \$235.8 million in payrolls processed under PSDS and, as a result, qualified their opinion regarding the Department's financial statements for fiscal year 1969. We were advised that the primary reason for this qualification was that the PSDS time and attendance application had not "stabilized" and that therefore the internal auditors had difficulty with the controls over, and reliability of, the payroll data.

In our view the lack of reliable payroll data highlights the inadequacy of PSDS reports, because the inaccurate information generated by the system cannot be used by management to effectively evaluate operations and make sound decisions.

WORK LOAD RECORDING SYSTEM REPORTS

The Work Load Recording System was to provide essential information on mail volume and labor-hour distribution to enable postal managers to improve their ability to schedule the work force to meet the expected work load.

Despite receiving information indicating that the Work Load Recording System would not meet the above objective, in July 1970 the Department began incorporating it into the automated PSDS procedures.

An official in one post office told us that information being received under a manual version of the Work Load Recording System was not as meaningful as that which had been received under the Work Measurement System. He said that the Work Measurement System information had been broken down into 8-hour shifts, whereas the Work Load Recording System provided information for 24-hour periods without regard to individual work shifts. Therefore production inefficiency could not be identified by work shift.

A Department report for the fourth quarter of 1969 stated that routine work load recording procedures yielded only the total daily volume processed through each operation--figures that, according to the report, were manifestly unusable in determining optimum staffing levels for different times of the day.

Our visits in September and November of 1970 to several post offices confirmed that Work Load Recording System reports did not effectively serve postal management's efforts to improve its scheduling of the work force to meet expected mail work loads and efforts to improve the management of mail processing during the work tours. Management officials stated that Work Load Recording System reports generated by PSDS were received about 2 days after the day covered by the report, that the data was not accurate, and that the data as shown in the reports was for a 24-hour period rather than by an 8-hour work tour. They indicated, however, that the reports were useful in establishing historical trends on hours used and pieces of mail handled.

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We believe that the reports and data produced by PSDS have not resulted in more timely, more accurate, or more useful data as predicted by the Department in its initial justification of PSDS in 1966. The Department, however, has reported progress in eliminating unnecessary reports and in making changes to other reports to improve their accuracy and usefulness to postal management.

CHAPTER 5

PSDS EXPANSION AND MODIFICATION PROGRAM

The Department is engaged in a multimillion-dollar program to expand the PSDS data collection network to an additional 35 post offices and to modify the system still being installed in the first 75 offices.

The Department's 5-year program and financial plan initially called for the expansion of the PSDS network to an additional 25 post offices each year during the period 1971 through 1975, a total of 235 PSDS post offices by the end of fiscal year 1975. In August 1969 the Department revised this plan to limit the expansion to 150 post offices. According to a Department official, however, this plan was further revised to limit the expansion to 110 post offices because of budgetary considerations. Funds committed under contracts for the expansion and modification program totaled more than \$14 million, and the Department included in its fiscal year 1971 budget request more than \$3 million to continue these efforts.

As of June 1970 funds had been committed and work was in progress in the following areas.

- Two additional teleconcentrator sites, not contemplated in the original PSDS proposal, were being planned and/or constructed and equipped at Oklahoma City and Binghamton, New York (the Oklahoma City teleconcentrator is now in operation).
- Additional equipment was being or had been installed in the ADPCs at Paramus and St. Louis to establish dual data processing systems with multiprogram capabilities at each site (this equipment installation has since been completed).
- The ADPC at Paramus was being relocated to Wilkes-Barre, primarily because of the lack of adequate space for expansion at Paramus (this relocation has since been completed).

- The Washington teleconcentrator site was being planned for relocation to Richmond, primarily because of the lack of adequate space for expansion in Washington.
- PSDS data collection equipment was being installed in postal facilities which would be replaced by new facilities within a relatively short period of time-- this would result in additional relocation and/or replacement costs for PSDS equipment and cabling when these new facilities were completed.

In September 1970, after we reported our review findings to the Postmaster General, Department officials informed us that plans to establish an additional teleconcentrator site at Binghamton and to relocate the Washington teleconcentrator site to Richmond had been revised. The revised plans call for consolidating, at the new ADPC in Wilkes-Barre, all teleconcentrator operations supporting the ADPC which were to have been located at separate sites in Binghamton, Paramus, and Richmond. The Department believes that the planned consolidation will reduce overall system costs and will increase operating efficiency.

In our opinion PSDS, as it is being operated in the post offices, is not resulting in cost savings nor improving the internal management of postal operations and therefore PSDS should not be expanded at this time to include additional post offices.

CHAPTER 6

CONCLUSIONS, AGENCY COMMENTS AND OUR EVALUATION, AND RECOMMENDATIONS

CONCLUSIONS

In our opinion the deficiencies and problems of PSDS and the high costs associated with its installation and operation can be attributed to inadequate study and insufficient testing of PSDS prior to its nationwide installation.

In summary, changes in PSDS after the award of the contract for its acquisition and installation have resulted in overprocurement of costly PSDS equipment. Unrealistic system implementation and equipment delivery schedules have resulted in equipment not being used. Employee costs and other operating costs have greatly exceeded the Department's original estimates. The PSDS payroll (employee time and attendance) operation has been more costly than the previous manual payroll operation. The reports being generated by PSDS at the time of our review were less timely, less meaningful, and less accurate than reports available prior to installation of PSDS, and therefore the reports were less useful to postal management.

Despite these deficiencies in the system, the Department continues the expansion of PSDS to additional post offices.

AGENCY COMMENTS AND OUR EVALUATION

On June 26, 1970, we advised the Postmaster General of the results of our review and proposed that the Department not expand PSDS to any more post offices before making a comprehensive evaluation of PSDS, including a cost-benefit study, to determine its efficiency, economy, operational reliability, and usefulness to postal management. We suggested that expenditures for PSDS be held to a minimum until its operation evidences that cost savings and demonstrated improvements in postal management can be achieved.

By letter dated September 9, 1970 (see app. IV), the Postmaster General stated that the results of our review confirmed many of the findings previously reported by the Department's Internal Audit Division and that the difficulties, delays, and added costs involved in establishing PSDS were a matter of concern to the Department.

He concurred generally with our proposal to suspend expansion of PSDS until a comprehensive evaluation had been made, except that he believed the limited further expansion to 110 post offices must be completed if the Department was to avoid further adverse effects on the overall objective of providing information useful to control operations at large post offices. He advised us that commitments had been made and obligations had been incurred for most of the equipment involved in the limited expansion to 110 post offices.

He acknowledged that difficulties had been experienced which impaired the effectiveness of PSDS to date. He stated, however, that, although some mistakes had been made, the Department did not agree that all of them could have been avoided. In explanation of these difficulties, he cited, among other things, the adoption of an accelerated, and possibly unrealistic, schedule for implementing PSDS and the concurrent development and implementation of PSDS.

The Postmaster General stated also that, over the previous 12 months, postal management had introduced considerable improvement intended to increase the reliability and effectiveness of computer processing operations and the timely submission of report data to post offices. Redesign of computer programming systems, introduction of quality control checks to assure continuous integrity of data, and adjustments in equipment components were cited as being among the changes made to improve operations. He said he believed that these efforts had, to a significant degree, overcome the difficulties we had presented in our draft report.

The Postmaster General said also that the Assistant Postmasters General for Finance and Administration and for Operations had assured him that substantial benefits were forthcoming from the operation of PSDS.

We were subsequently informed by Department officials that, among improvements introduced in PSDS, changes were made in the equipment to (1) enable PSDS to process various kinds of information simultaneously and provide a higher speed sorting capability and (2) increase the memory (data storage capacity) of PSDS. We believe that these actions should aid in achieving a more productive system.

Although efforts have been made to improve the accuracy and reliability of the PSDS time and attendance application, our review has shown, and Internal Audit Division studies have shown also, that it is more costly to perform time and attendance functions under PSDS than under the former manual system.

Reports produced under the Work Load Recording System application of PSDS at the time of our field visits were not effectively serving postal management. We believe that considerable improvement is needed before reports produced by PSDS can be effectively used to improve management of mail operations.

We agree that providing useful information to management for controlling operations is a desirable objective. However, the work load data produced by PSDS is not accurate, is not timely, and is not effectively serving management in either controlling or improving postal operations. We therefore believe that it is not desirable to expand PSDS to additional post offices without first making improvements so that it will produce data which is not only reliable and timely but also helpful to management in doing a better job.

We believe also that the expansion of PSDS to any additional post offices, when its effectiveness and economy have not been demonstrated at the facilities where it has been installed, would not be a judicious investment of Department funds.

Although the Postmaster General stated in his September 1970 letter that commitments had been made and obligations had been incurred for most of the equipment involved in the expansion of PSDS to 110 post offices, the installation of this equipment in the post offices requires the expenditure of substantial additional funds for such items as electrical

cabling, building modifications, special air conditioning, and auxiliary electrical power generation, as well as for operation and maintenance of the equipment once it has been installed.

We noted that on October 12, 1970--1 month after commenting on our draft report--the Department awarded a \$400,000 contract for furnishing and installing cabling and related equipment at PSDS post offices. We note also that the Department has budgeted, for fiscal year 1972, additional funds for PSDS equipment for the 110 post offices--\$1 million for data collection equipment and \$600,000 for systems reconfiguration--and \$4 million to maintain and repair installed PSDS equipment, including the additional equipment budgeted for fiscal year 1972.

Further, the Department has projected additional PSDS equipment requirements and related building alterations totaling \$1 million annually for fiscal years 1973 through 1976 for continued system expansion and modification within the 110 post office network. We believe, therefore, that, notwithstanding the Department's existing commitments and obligations for equipment to expand PSDS to the 110 post offices, significant future expenditures of funds could still be avoided if the current expansion were suspended.

RECOMMENDATIONS TO THE POSTMASTER GENERAL

We recommend that the Postmaster General

- suspend the PSDS expansion program pending a comprehensive evaluation and cost-benefit study of PSDS to determine its efficiency, economy, operational reliability, and usefulness to postal management and
- curtail the procurement of PSDS equipment and software (programs) and keep operational costs to a minimum, pending the outcome of the comprehensive evaluation and cost-benefit study of PSDS.

CHAPTER 7

SCOPE OF REVIEW

Our review was made at the Department's headquarters in Washington; at the postal regional offices and postal data centers in Atlanta and New York; at the ADPC located, at the time of our review, in Paramus; at the teleconcentrator sites in Washington and Paramus; and at the post office facilities in Atlanta; Baltimore and Riverdale (Prince George's County), Maryland; Detroit, Michigan; Newark; Brooklyn; Richmond and Norfolk, Virginia; and Seattle, Washington.

We reviewed Department budget justification documents for PSDS and legislation and records of hearings of the House and Senate Committees on Appropriations pertaining to the planning and the justification for PSDS. At Department headquarters and the various field locations we examined (1) pertinent records, correspondence files, contracts, and other documents related to the feasibility, planning, acquisition and operating costs, installation, and use of PSDS and (2) reports being generated by PSDS under the employee time and attendance and the Work Load Recording System applications at selected post offices. We also held discussions with officials at various management levels within the Department to determine the usefulness of PSDS-generated reports to postal management.

In addition, we reviewed pertinent documents furnished us by the prime contractor for PSDS.

APPENDIXES

PSDS POST OFFICES
(as of November 1970)

Alabama: Birmingham	Illinois: Chicago Chicago North Suburban ^{a,b} Chicago South Suburban ^{a,b} Peoria ^a Springfield ^a	Missouri: Kansas City St. Louis	Oregon: Portland
Arizona: Phoenix		Nebraska: Omaha	Pennsylvania: Harrisburg Lehigh Valley ^{a,b} Philadelphia Pittsburgh
Arkansas: Little Rock ^a		New Jersey: Camden ^a Hackensack ^a Jersey City Newark Paterson ^{a,b} Trenton	Rhode Island: Providence
California: Fresno ^a Inglewood ^a Long Beach Los Angeles Oakland Pasadena ^a Sacramento San Bernardino ^a San Diego San Francisco San Jose Santa Ana ^a Stockton ^a Van Nuys ^a	Indiana: Fort Wayne ^a Indianapolis	New Mexico: Albuquerque	South Carolina: Columbia ^a
Colorado: Denver	Iowa: Des Moines	New York: Albany Bronx Brooklyn Buffalo Flushing ^b Hicksville ^{a,b} Jamaica Long Island City New York City ^b Rochester Syracuse White Plains ^{a,b} Yonkers ^{a,b}	Tennessee: Knoxville ^a Memphis Nashville
Connecticut: Bridgeport ^a Hartford New Haven	Kansas: Wichita		Texas: Austin ^a Dallas Fort Worth Houston San Antonio
Delaware: Wilmington ^a	Kentucky: Lexington ^a Louisville		Utah: Salt Lake City
District of Columbia: Washington ^b	Louisiana: Baton Rouge ^a New Orleans	North Carolina: Charlotte Greensboro	Virginia: Norfolk Richmond
Florida: Jacksonville Miami Orlando ^a St. Petersburg ^a Tampa	Maine: Portland	Ohio: Akron Cincinnati Columbus Cleveland Dayton Toledo	Washington: Seattle Spokane Tacoma ^a
Georgia: Atlanta	Maryland: Baltimore Prince Georges ^a	Oklahoma: Oklahoma City Tulsa	West Virginia: Charleston ^a
	Massachusetts: Boston Springfield		Wisconsin: Madison ^a Milwaukee ^b
	Michigan: Detroit Flint ^a Grand Rapids Royal Oak ^a		
	Minnesota: Minneapolis ^b St. Paul		

^aDenotes the 35 post offices included in the expanded PSDS network.

^bDenotes post offices where PSDS had not been installed as of November 30, 1970.

APPENDIX II

BASIC COMPONENTS OF POSTAL SOURCE DATA SYSTEM

INPUT DEVICES

1. Badge readers are used to record time and attendance and work assignment data. (See picture on p. 53.)
2. Transactor input stations are used to record leave, personnel actions, adjustments, and certain mail volume information and can be used as badge readers. (See picture on p. 54.)
3. Electronic scales are used to record the weight of the mail by type, classification, and operation. Three types of scales are used: floor, bench, and in-motion (conveyor). (See pictures on pp. 55 and 57.)
4. Alphanumeric input terminals are used to initiate inquiries relative to any data pertinent to a post office, such as employee pay records. (See picture on p. 56.)

COMMUNICATION DEVICES AND NETWORK

1. One or more concentrators are located within a data collection site at each of the PSDS post offices. These concentrators continuously collect all data generated by the input devices and automatically forward it to one of five teleconcentrator sites. Each concentrator contains dual components to assure continuous operation.
2. Each of the five teleconcentrators consists of dual medium-sized computer systems (as a safeguard against system failure in the event one unit becomes inoperative) and various subsidiary equipment. The teleconcentrators receive data from the PSDS post offices they serve, transmit acknowledgements to the concentrators when data has been received, and forward the data to the ADPCs for processing. In the event an ADPC is unable to accept data transmission, the teleconcentrators can store the data on magnetic tape until it can be transmitted to the ADPC. (See picture on p. 59.)

3. Local and long-distance transmission lines leased from various telephone companies serve as data transmission channels between (a) branches, stations, and local post office data collection sites (b) post office data collection sites and teleconcentrator sites, and (c) teleconcentrator sites and ADPCs. Alternate data transmission channels are provided for use between the post office data collection sites and the teleconcentrator sites.

AUTOMATIC DATA PROCESSING CENTERS

Each of the two ADPCs in the system consists of dual large-scale computer systems. This redundancy provides backup capacity in the event that one system fails. At the ADPC data is received, processed, manipulated, and stored, and reports are prepared and dispatched to remote locations. Each data message received is edited and validated; employee files are updated; payroll information is computed, formatted, and transmitted to the appropriate postal data center for the actual preparation of salary checks; labor distribution data is compiled; and mail volumes are computed.

All data messages received and stored in the ADPCs are also recorded on magnetic tape as a safeguard against loss of data should the disc files used for working storage malfunction. (See pictures on pp. 60 and 61.)

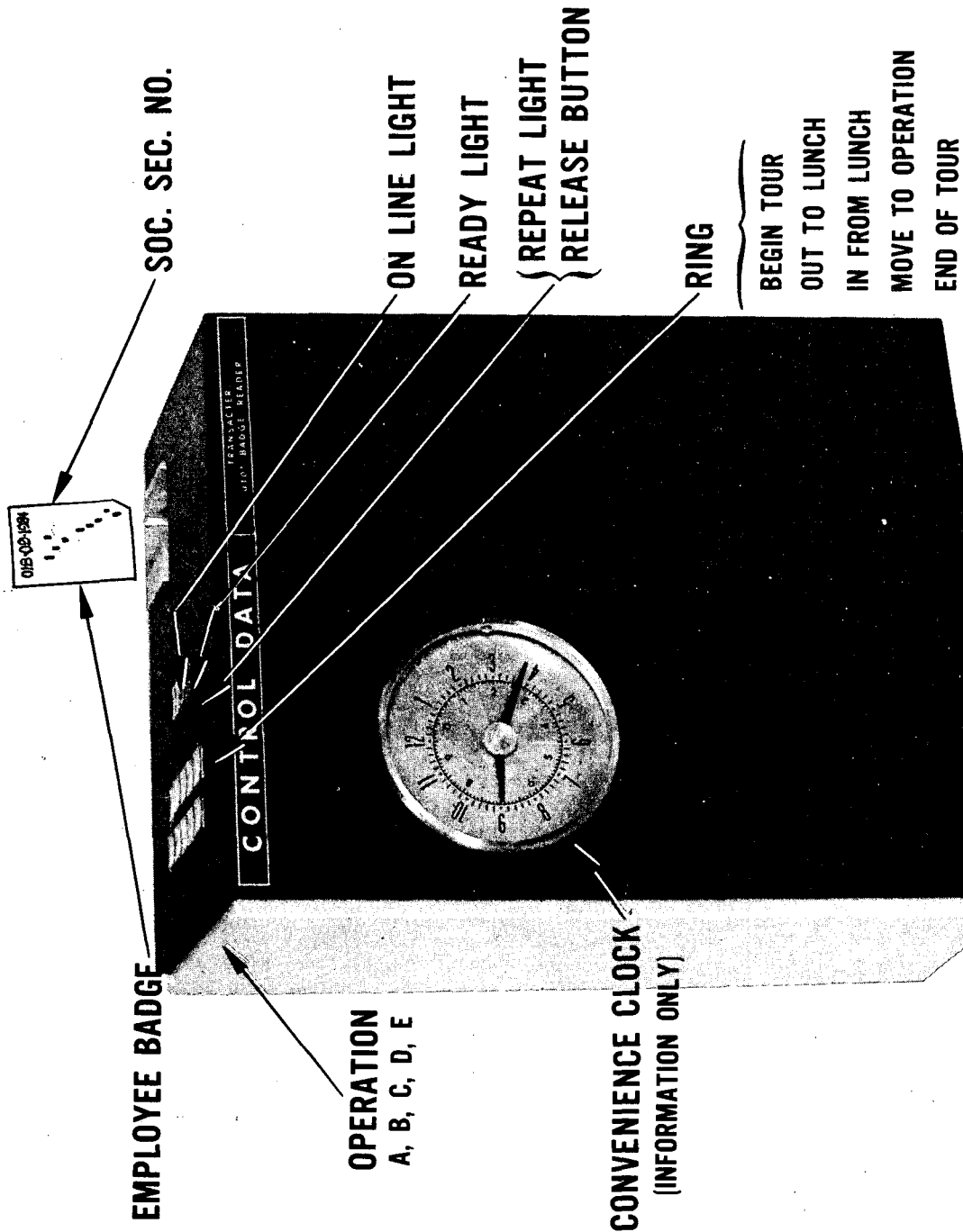
OUTPUT DEVICES

Each PSDS post office, teleconcentrator site, and ADPC is equipped with a high-speed printer terminal which provides printouts of any messages or reports directed to the particular site where the printer terminal is located. (See picture on p. 58.)

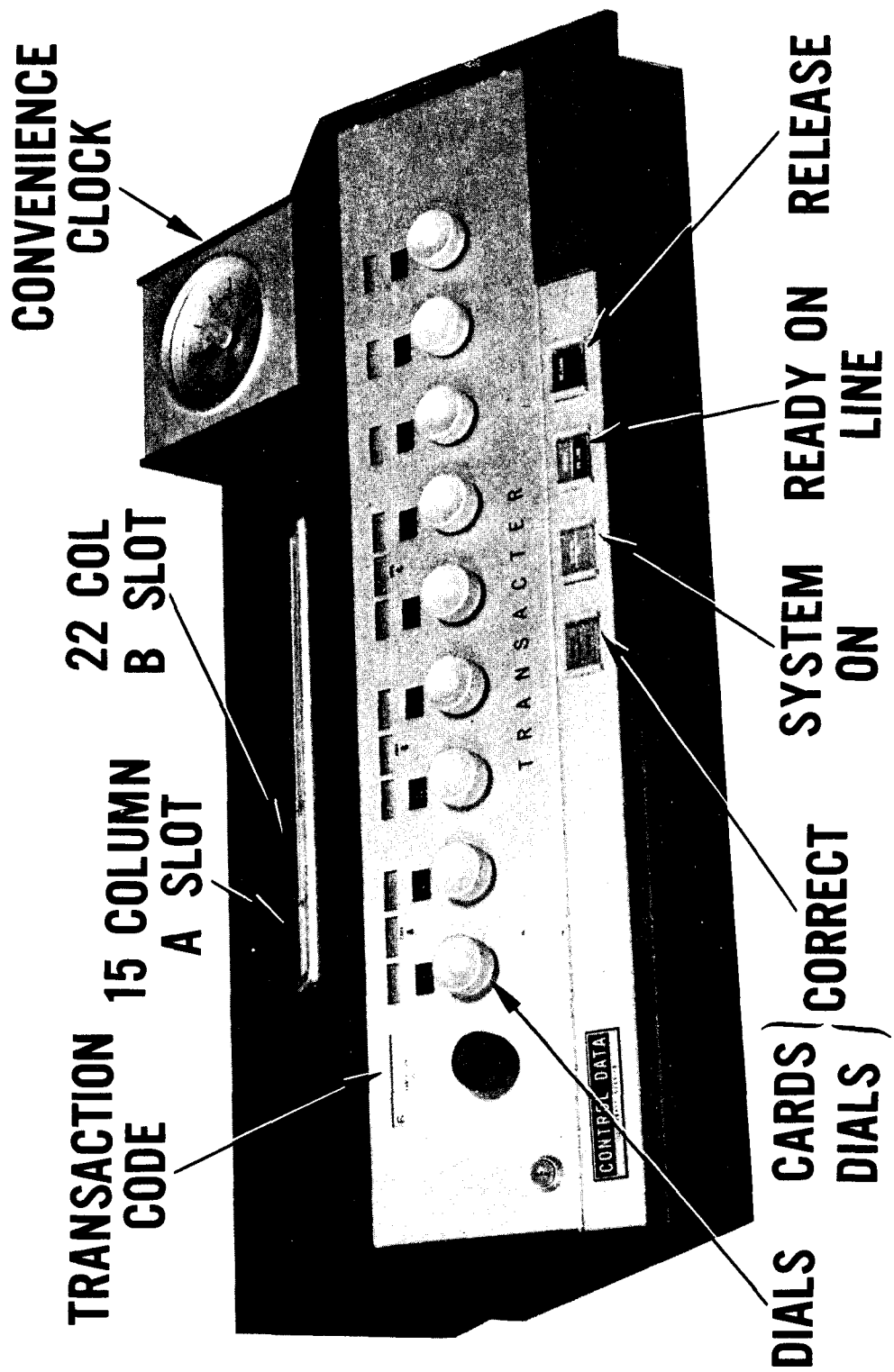
APPENDIX III

PICTURES OF SELECTED PSDS EQUIPMENT COMPONENTS

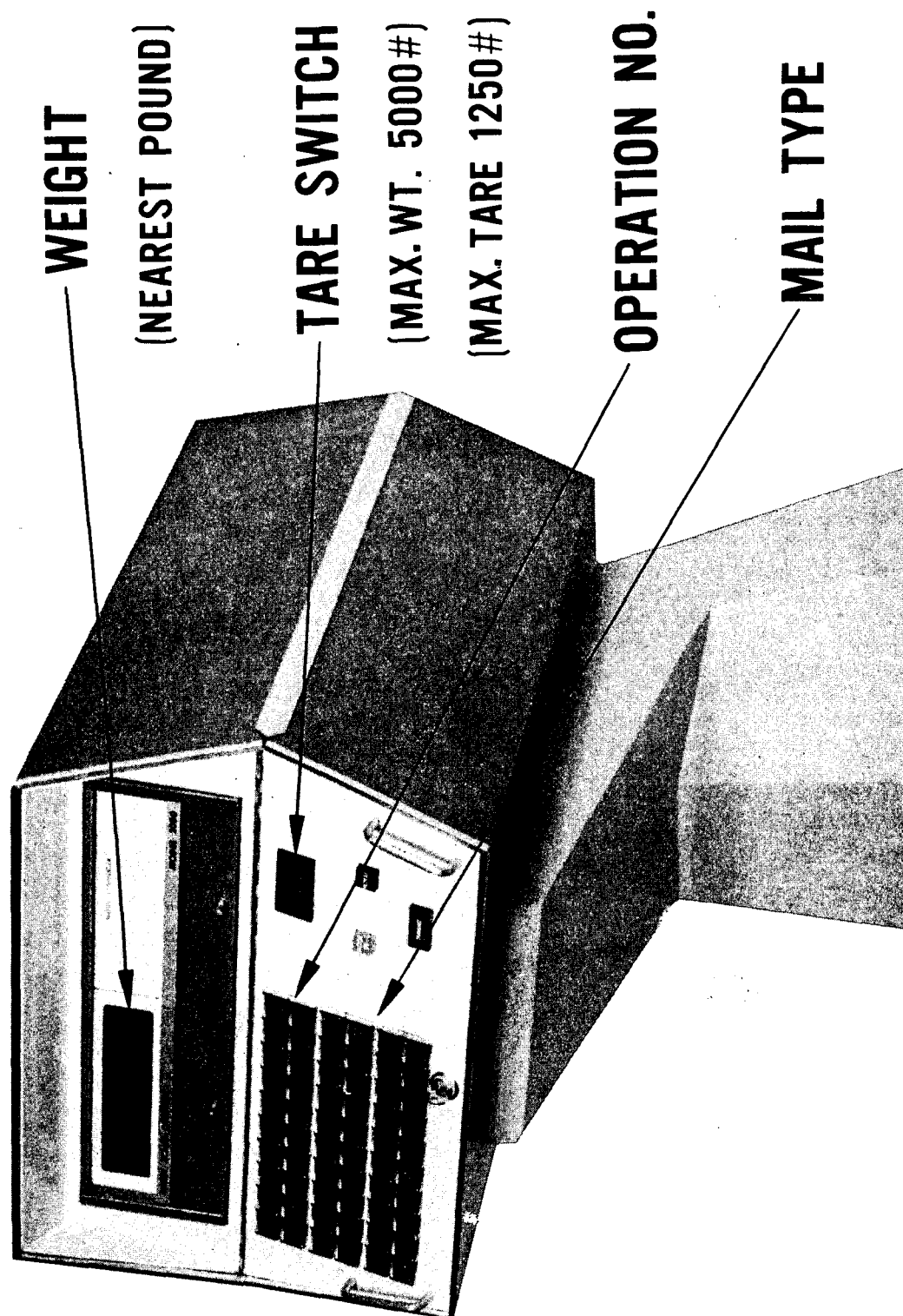
BADGE READER



TRANSACTION



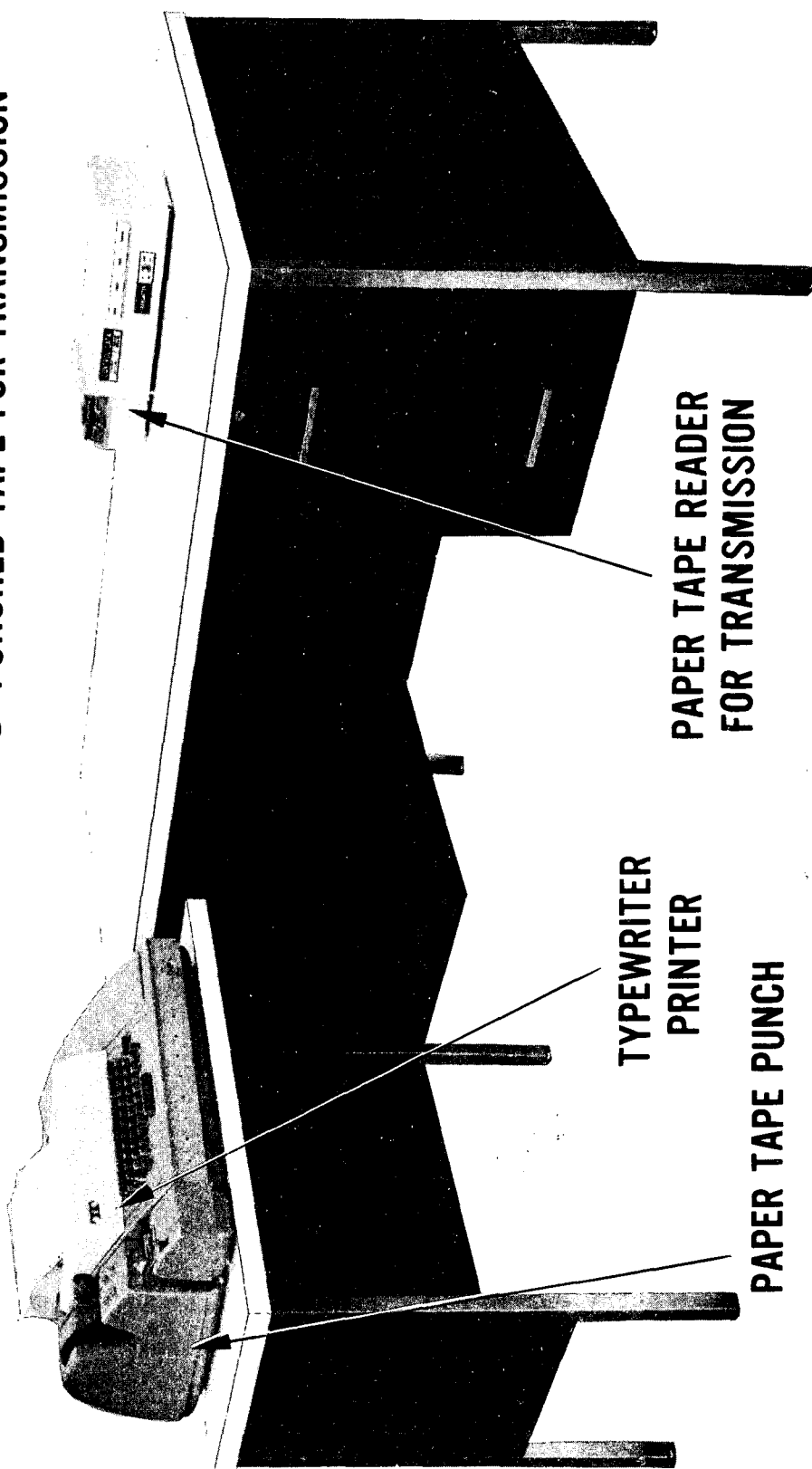
ELECTRONIC FLOOR SCALE



ALPHANUMERIC INPUT DEVICE

PRODUCES:

- PRINTED COPY OF MESSAGE
- PUNCHED TAPE FOR TRANSMISSION



TYPEWRITER
PRINTER

PAPER TAPE PUNCH

PAPER TAPE READER
FOR TRANSMISSION

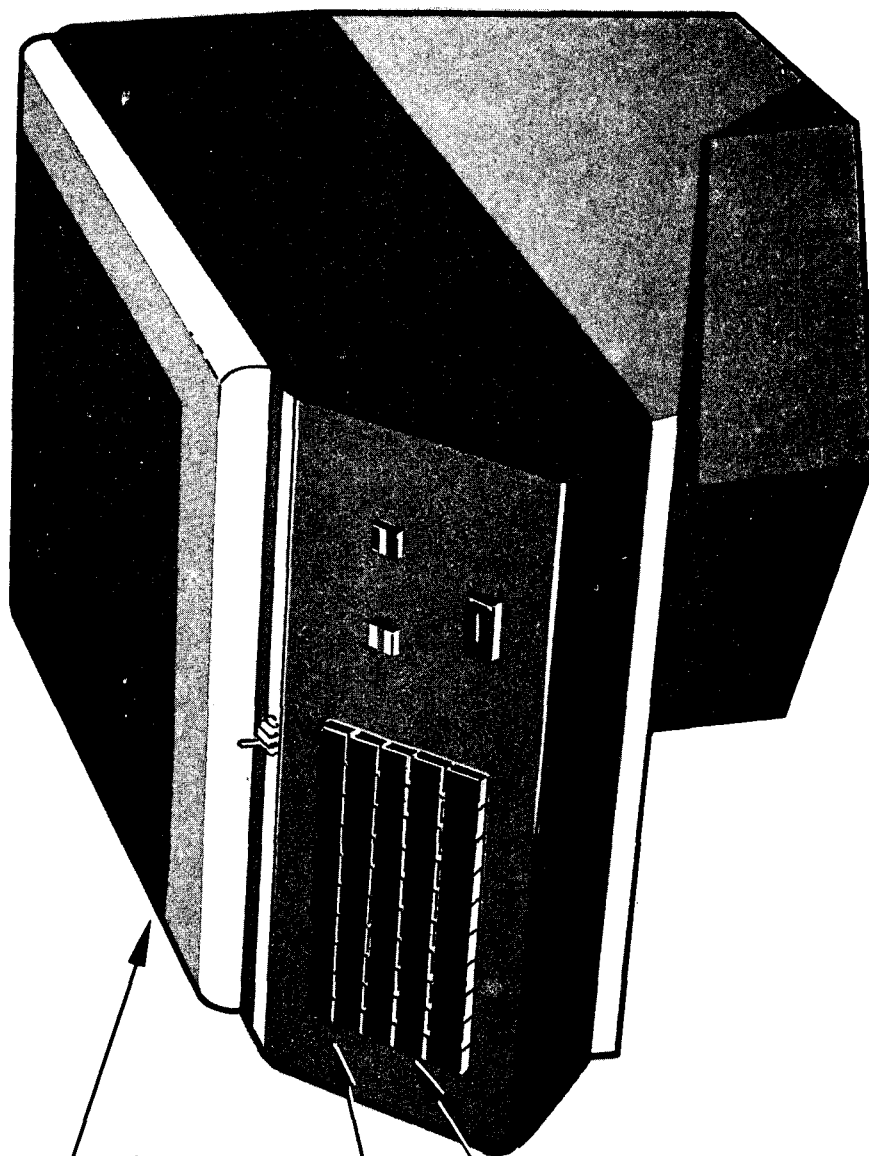
ELECTRONIC BENCH SCALE

MAX. WT. 99.99 LBS.

WEIGHT
(TO ONE HUNDREDTH
OF A POUND)

OPERATION
NO.

MAIL TYPE



APPENDIX III



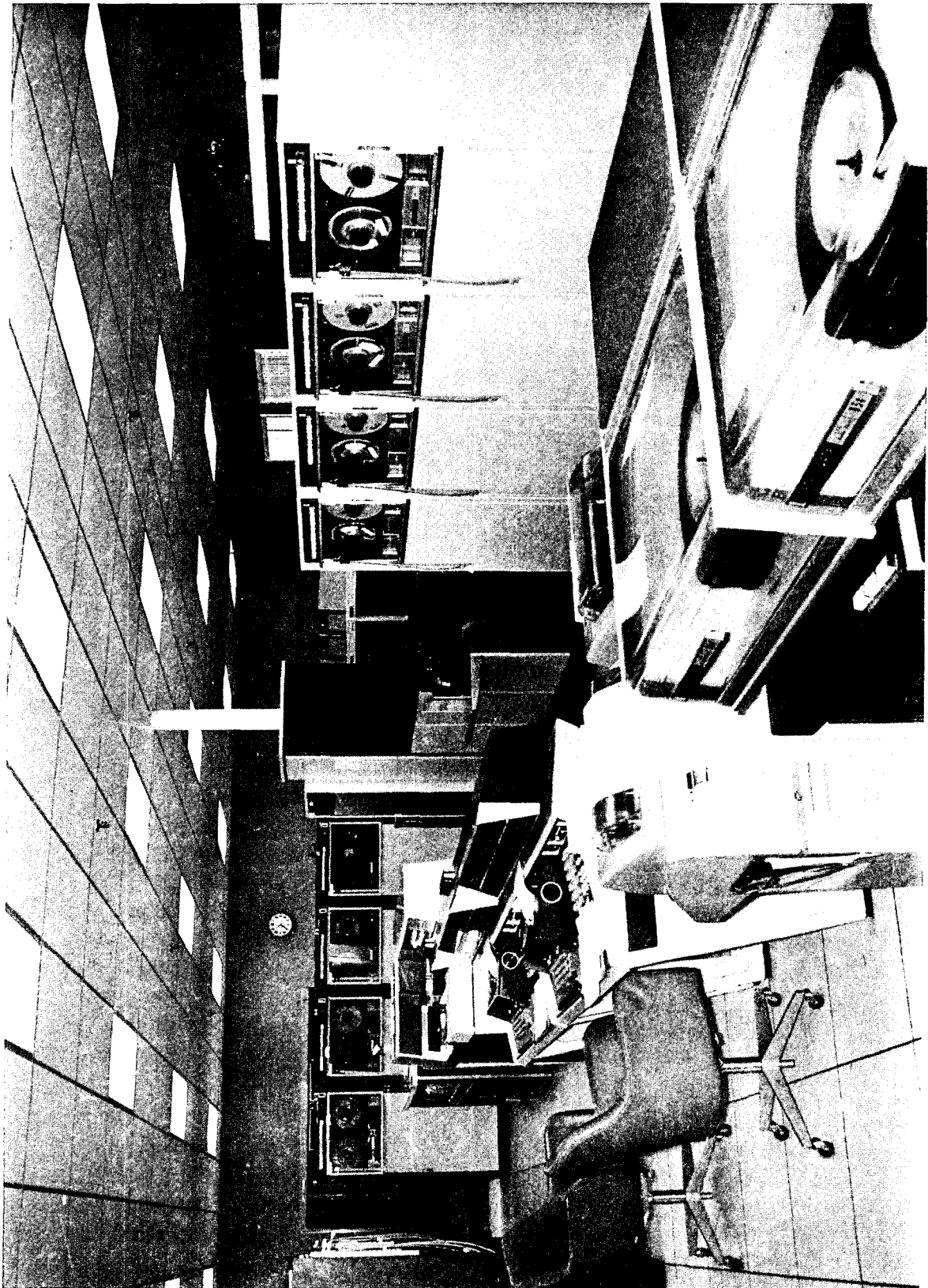
PRINTER TERMINAL



(Picture taken in March 1970)

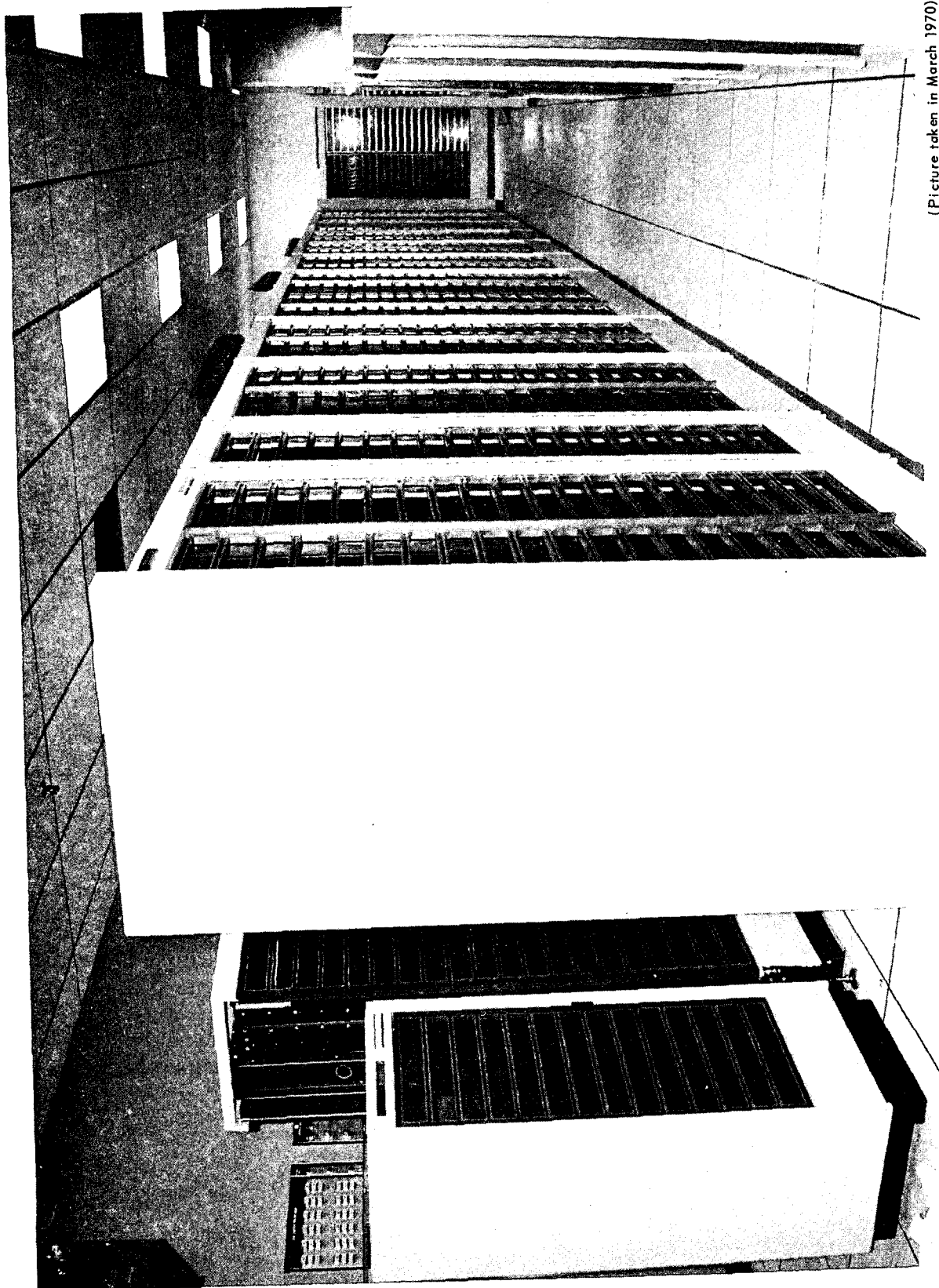
TELECONCENTRATOR SITE, PARAMUS, NEW JERSEY

APPENDIX III



(Picture taken in March 1970)

AUTOMATIC DATA PROCESSING CENTER (ADPC), PARAMUS, NEW JERSEY



(Picture taken in March 1970)

DATA MEMORY BANKS -- AUTOMATIC DATA PROCESSING CENTER, PARAMUS, NEW JERSEY



The Postmaster General
Washington, D.C. 20260

September 9, 1970

Dear Mr. Neuwirth:

Thank you for your letter advising the results of your review of the Postal Service Data System and for the opportunity to comment on your proposed report.

Your study, which has been helpful to us, confirms many of the findings previously reported by our own internal audit. The difficulties, delays, and added costs involved in establishing the system, as experienced in the period since the decision was made and the program initiated in 1966, are a matter of concern to our management.

Our concern is twofold: First, to assure that a fully productive system is completed and, second, that any deficiencies in plans or procedures which may have occurred in the past have been completely eliminated. I believe that we are taking necessary actions in this direction.

The original project envisioned a system which would readily make available to management essential data relating to employee time and attendance for pay purposes, the volume of mail handled, and workload distribution for operational and cost control purposes. This was the initial objective at the time the decision was made in 1966 and was the basis for the planning and procedures that followed.

As you point out, difficulties have been experienced which impaired the effectiveness of the system to date. In recognition that some mistakes were made, we do not, however, agree that all could have been avoided. There are reasonable explanations which account for many of the items covered in your report.

The urgent need within the Postal Service for improved management and control information apparently caused the adoption of an

accelerated and possibly unrealistic schedule which was extremely difficult to meet. The development as well as implementation of the system were to be accomplished concurrently to a significant degree. In a developmental environment, especially in a system as complex as this, it is not uncommon that schedules originally fixed, especially on an accelerated basis will slip -- systems specifications will require altering -- and change in equipment requirements and reconfiguration will be necessary.

A management decision was reached during the development of the system to revise the workload and labor distribution factor. This decision substantially affected the system being developed and equipment requirements. The new workload recording system is designed to enable postal management to receive, on a timely basis, information of far greater value in the efficient control of operations. The additional costs for equipment over the costs originally projected, are also accounted for in part by the need, which clearly developed as the system progressed, to embrace a far greater number of employees and to provide a level of redundancy of equipment necessary to support the continuous uninterrupted operation of the system.

Over the past 12 months, our management has introduced considerable improvements to increase the reliability and effectiveness of computer processing operations and the timely submission of report data to post offices. A re-design of both the on-line and off-line computer programming systems, the introduction of extensive quality control checks to assure continuous integrity of data, and adjustments in equipment components, are among the changes made in recent months for improved operations. We believe these efforts have, to a significant degree, overcome the difficulties cited in your draft report.

We continue to expect that over the coming months many of the direct and indirect benefits projected earlier will be realized from the application of the mail volume, labor distribution, and time and attendance recording data. A number of other actions are contemplated, including, but not limited to, the recovery of manpower released upon completion and satisfactory operation of the system.

APPENDIX IV

Your report recommends that any further expansion of the system be suspended pending a comprehensive evaluation to determine its efficiency, economy, and operational reliability. We concur generally with your recommendation with the exception, however, that a limited further expansion to 110 offices must be completed if we are to avoid further adverse effect on our overall objective of providing information useful to the control of operations in our large post offices. Moreover, commitments were made and obligations incurred some time ago for most of the equipment involved in the limited expansion.

I have personally reviewed this matter with the Assistant Postmaster General, Bureau of Finance and Administration, and the Assistant Postmaster General, Bureau of Operations. Both have assured me of the substantial benefits that are forthcoming from the operation of this system. Moreover, they look ahead to the system also serving in a number of other activities which have generated great volumes of paperwork such as the motor vehicle reporting and inventory control.

Further detailed explanations of each of the specific items mentioned in your report, because of their complexities, can best be delivered and understood in mutual discussions between your representatives and ours. I suggest that this be done.

Sincerely,



Winton M. Blount

Mr. Max A. Neuwirth
Associate Director, Civil Division
U. S. General Accounting Office
Washington, D. C. 20548

PRINCIPAL MANAGEMENT OFFICIALS OF
THE POST OFFICE DEPARTMENT
RESPONSIBLE FOR ADMINISTRATION OF
POSTAL SOURCE DATA SYSTEM

	<u>Tenure of office</u>	
	<u>From</u>	<u>To</u>
POSTMASTER GENERAL:		
Winton M. Blount	Jan. 1969	Present
W. Marvin Watson	Apr. 1968	Jan. 1969
Lawrence F. O'Brien	Nov. 1965	Apr. 1968
DEPUTY POSTMASTER GENERAL:		
Vacant	Jan. 1971	Present
Elmer T. Klassen	Feb. 1969	Jan. 1971
Frederick C. Belen	Feb. 1964	Jan. 1969
ASSISTANT POSTMASTER GENERAL FINANCE AND ADMINISTRATION DEPARTMENT (note a):		
James W. Hargrove	Feb. 1969	Present
Ralph W. Nicholson	Mar. 1961	Feb. 1969
ASSISTANT POSTMASTER GENERAL OPERATIONS DEPARTMENT (note a):		
Frank J. Nunlist	Apr. 1969	Present
Vacant	Dec. 1968	Apr. 1969
William M. McMillan	Feb. 1964	Dec. 1968

^aEffective December 1, 1970, all bureaus within the postal establishment were redesignated as departments.